WHAT IS CLAIMED IS:

1 1. An entertainment apparatus which displays a moving picture
2 on a display screen of a display device, the moving picture
3 being obtained by photographing an object moving in a virtual
4 three dimensional field, according to manipulation contents
5 of a manipulator received via a controller, by the use of
6 a virtual camera, comprising:
7   object position calculating means for sequentially
8 calculating a position and a moving direction of said object
9 in said three dimensional field; and
10   camera setup means for determining a setup point of
11 said virtual camera in said three dimensional field every
12 time the position and moving direction of said object are
13 calculated by said object position calculating means, while
14 taking a setup point of the virtual camera obtained at least
15 in the last calculation into consideration.

1 2. The entertainment apparatus according to claim 1, wherein,
2   said camera setup means includes means for settling
3 a camera chasing point at a position higher by a predetermined
4 value H than a position to the rear of said object from the
5 position thereof by a distance K, the position being on a

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6   line which passes through a newly calculated position of

7   said object by said object position calculating means and

8   is parallel with a newly calculated moving direction of said

9   object, and wherein said camera setup means settles a setup

10   point of said virtual camera at a position approaching said

11   camera chasing point from the setup point of said virtual

12   camera obtained at least in the last calculation.

1   3. The entertainment apparatus according to claim 2,

2   wherein said camera setup means settles the setup point

3   of the virtual camera at a position approaching said camera

4   chasing point from the setup point of said virtual camera

5   obtained at least in the last calculation by a distance L/M,

6   the distance L/M being obtained by dividing a distance L,

7   which is between said camera chasing point and said virtual

8   camera setup point, obtained at least in the last calculation,

9   by a predetermined value M.

1   4. The entertainment apparatus according to claim 3, wherein,

2   said camera setup means sets said distance K so as to

3   be shorter as a moving speed of said object in said three

4   dimensional field is increased.

1   5. The entertainment apparatus according to claim 1,

2   wherein

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3   said camera setup means includes means for settling

4   a camera reference point at a position in front of the position

5   of the object by a distance J, the position being on a line

6   passing through a newly calculated position of said object

7   by said object position calculating means, and the line being

8   parallel with a newly calculated moving direction of said

9   object, and wherein said camera setup means settles a sight

10   line direction of the virtual camera so that said virtual

11   camera is pointed at said camera reference point.

1   6. The entertainment apparatus according to claim 5, wherein,

2   said camera setup means sets said distance J so as to

3   be longer as a moving speed of said object in said three

4   dimensional field is increased.

1   7. The entertainment apparatus according to claim 1, wherein,

2   said camera setup means rotates said virtual camera

3   around a sight line direction of said virtual camera as an

4   axis in response to a rotation of said object around the

5   moving direction as an axis.

1   8. A storage medium storing a program which is read out and

2   executed by a computer,

3   said program being read out and executed by said

4   computer to realize means on said computer, said means

5   displaying a moving picture on a display screen of a display

6   device connected to the computer, obtained in such a manner

7   that an object moving in a virtual three dimensional field

8   according to manipulation contents of a player, which are

9   received by said computer via a controller connected to said

10   computer, is photographed by a virtual camera, and

11   said means comprises:

12   object position calculating means for sequentially

13   calculating a position and a moving direction of said object

14   in said three dimensional field; and

15   camera setup means for determining a setup point of

16   said virtual camera in said three dimensional field every

17   time the position and the moving direction of said object

18   are calculated by said object position calculating means,

19   while taking the setup point of said virtual camera obtained

20   at least in the last calculation into consideration.

1   9. The storage medium storing the program according to claim

2   8, wherein,

3   said camera setup means includes means for settling

4   a camera chasing point at a position higher by a predetermined

5   value H than a position to the rear of said object from the

6   position thereof by a distance K, the position being on a

7   line which passes through a newly calculated position of

8   said object by said object position calculating means and

9 is parallel with a newly calculated moving direction of said

10 object, and wherein,

11 said camera setup means settles a setup point of the

12 virtual camera at a position approaching said camera chasing

13 point from the setup point of said virtual camera obtained

14 at least in the last calculation.

1 10. The storage medium storing the program according to claim

2 9, wherein,

3 said camera setup means settles the setup point of the

4 virtual camera at a position approaching said camera chasing

5 point from the setup point of said virtual camera obtained

6 at least in the last calculation by a distance L/M, the

7 distance L/M being obtained by dividing a distance L, which

8 is between said camera chasing point and said virtual camera

9 setup point obtained at least in the last calculation, by

10 a predetermined value M.

1 11. The storage medium storing the program according to claim

2 10, wherein,

3 said camera setup means sets said distance K so as to

4 be shorter as a moving speed of said object in said three

5 dimensional field is increased.

1 12. The storage medium storing the program according to claim

2   8, wherein,

3   said camera setup means includes means for settling

4   a camera reference point at a position in front of the position

5   of the object by a distance J, the position being on a line

6   passing through a newly calculated position of said object

7   by said object position calculating means, and the line being

8   parallel with a newly calculated moving direction of said

9   object, and wherein,

10   said camera setup means settles a sight line direction

11   of the virtual camera so that said virtual camera is pointed

12   at said camera reference point.

1   13. The storage medium storing the program according to claim

2   12, wherein,

3   said camera setup means sets said distance J so as to

4   be longer as a moving speed of said object in said three

5   dimensional field is increased.

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1   14. The storage medium storing the program according to claim

2   8, wherein,

3   said camera setup means rotates said virtual camera

4   around a sight line direction of said virtual camera as an

5   axis in response to a rotation of said object around the

6   moving direction as an axis.

1 15. A program product which is read out and executed by a
2 computer, said program product being executed by said
3 computer to realize means on said computer, said means
4 displaying a moving picture on a display screen of a display
5 device connected to the computer, obtained in such a manner
6 that an object moving in a virtual three dimensional field
7 according to manipulation contents of a player, which are
8 received by said computer via a controller connected to said
9 computer, is photographed by a virtual camera, and
10   said means comprise:
11   object position calculating means for sequentially
12 calculating a position and a moving direction of said object
13 in said three dimensional field; and
14   camera setup means for determining a setup point of
15 said virtual camera in said three dimensional field every
16 time the position and the moving direction of said object
17 are calculated by said object position calculating means,
18 while taking the setup point of the virtual camera obtained
19 at least in the last calculation into consideration.

1 16. An object display method in which a moving picture is
2 obtained by photographing an object moving in a virtual three
3 dimensional field by the use of a virtual camera, and
4 displayed on a display screen of a display device, comprising
5 the steps of:

6   sequentially calculating a position and a moving

7   direction of said object in said three dimensional field;

8   and

9   determining a setup point of said virtual camera in

10 said three dimensional field every time the position and

11 the moving direction of said object are calculated while

12 taking a setup point of said virtual camera obtained at least

13 in the last calculation into consideration.